

Practical Methods to Measuring Outcomes

August 19, 2025

Katherine Webb-Martinez, Director, UC ANR Program
Planning and Evaluation

Vikram Koundinya, CE Evaluation Specialist & Associate
Professor of Extension, UC Davis

UCCE Guest Speaker

Justin Valliere, Invasive Weed & Restoration Ecology CE
Specialist & Assistant Professor of Extension, UC Davis

Agenda

10:00	Welcome & Overview
10:05	Presentation on Outcomes Evaluation with UCCE examples
11:00	Break
11:05	UCCE Academic Speaker
11:30	Activity: Individual Outcomes Worksheet & Small & Large Group Discussion
11:55	Wrap-up & Training Evaluation
12:00	Adjourn

Anticipated Outcomes

Participants will gain...

- Understanding of how to define program theory and connect to condition changes/public value
- Experience identifying outcomes and measurable indicators
- Understanding of options for evaluation data collection methods to measure program participant outcomes
- Feedback on your evaluation plan/approach



Why & How To Use Outcomes Data

- Program improvement
- Program support
- Accountability
- Communications
- Merit and promotion
- Publications
- Inform the field



Basic Steps for Outcomes Evaluation

1. Develop a program theory
2. Define the intended outcomes
3. Identify the indicators
4. Determine sources of information
5. Choose data collection methods
6. Analyze & interpret data
our trainings: Quant 9/23 & Qual 9/30
7. Use & communicate the findings



Develop a Program Theory

If this then that...

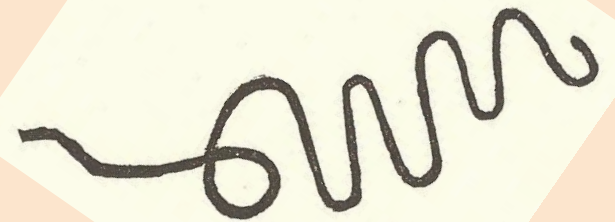


A diagram illustrating the components of a Program Theory. It features a large, light blue arrow pointing to the right. Inside the arrow, there are two blue rounded rectangular boxes. The left box is labeled 'Activities' and the right box is labeled 'Outcomes' in white text.

Activities

Outcomes

Real-life...

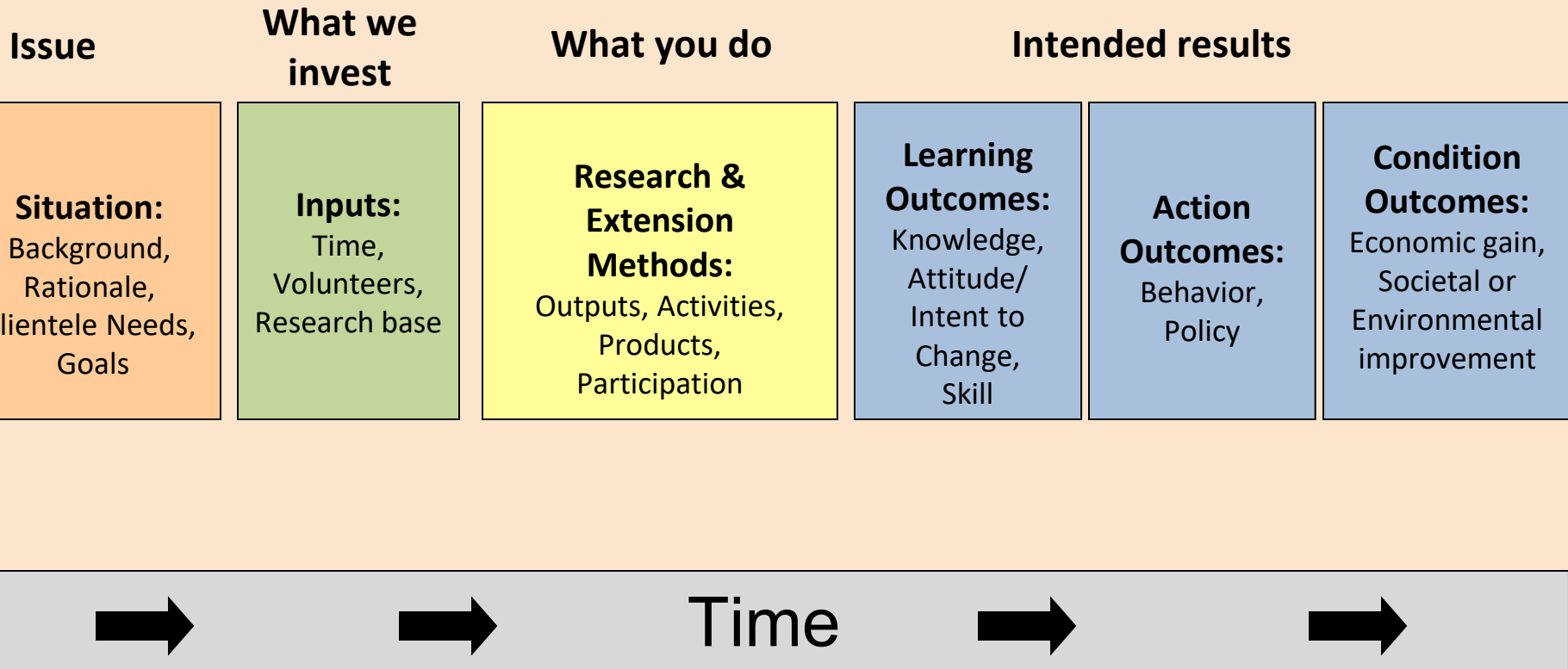


Leigh Johnson, UCCE San Diego Coastal Resources Advisor, Emeritus



Program Theory

Logic Model: A popular tool that can be used to conceptualize change effort
(UW-Madison Division of Extension, 2022)



Differentiating Outcomes from Outputs

- Outcome is something that *comes out* of a program
- Output is *under the control of educator*, whereas outcome is not under the full control of educator

(Davidson, J. E., 2016)

Examples of Outputs

What you do:

- Workshops
- Field Days
- Meetings
- Services
- Videos
- Blog posts
- Brochures
- Factsheets
- Curriculum
- Evaluation activity
- Working with media

Participation/Who you reach:

- Participants
- Clients
- Agencies
- Decision-makers
- Customers
- Satisfaction

Differentiating Outcomes from Impact

- Outcome is “so what” of outputs
- Impact is the ultimate “so what”

Outcomes and Impact

UC ANR Project Board & E-Book Definitions for UCCE academic program review and reporting

- *changes in **learning** (knowledge, attitudes, or skill)*
- *change in **behavior/practice***
- *changes in **policy or decision-making** (science-based information applied to decision-making or results from policy engagement)*
- *changes in **conditions** (social/health, economic, environmental)*

UC Master Gardener Example

Learning

Participants
gain
knowledge
& skills
about
composting



Action

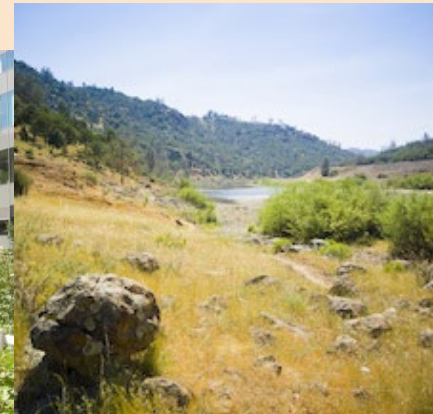
Participants
adopt
recommended
green waste
reduction
practices



Condition

Enhanced waste reduction,
recovery, and economic reuse

*BioCycle study:
16 households
diverted 5.8 tons
in 10 months*



UC ANR Condition Changes *Updated!*

People

1. Improved mental and physical well-being across an individual's lifespan
2. Improved community health and wellness
3. Improved built environment, landscaping, and access to green spaces
4. Increased community disaster preparedness and resilience to extreme weather and change in climate
5. Improved readiness and access to post-secondary education and career opportunities
6. Increased civic engagement
7. Increased public engagement and confidence in science
8. Improved living and working conditions
9. Increased equitable access to resources (e.g., information, education, technology, services, land, capital, clean air and water, healthcare)
10. Improved food and nutrition security, food sovereignty, and access to culturally relevant foods
11. Improved food safety
12. Enhanced regional-based food supply chains

UC ANR Condition Changes *Updated!*

Planet

1. Improved land stewardship (e.g., equitable land access, land use planning, restoration, and management strategies)
2. Increased ecological sustainability of agriculture, working landscapes, and natural ecosystems
3. Improved air quality
4. Improved soil health and productivity
5. Improved water quality
6. Improved water use efficiency and water supply security
7. Improved biodiversity (e.g. protected, restored)
8. Increased ecosystem resilience to extreme weather and change in climate
9. Increased agriculture and food system resilience to extreme weather and change in climate
10. Increased carbon sequestration and mitigation of greenhouse gas emissions
11. Enhanced waste reduction, recovery, and economic reuse
12. Reduced reliance on fossil fuels

UC ANR Condition Changes *Updated!*

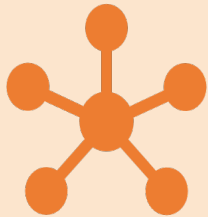
Prosperity

1. Increased stability, efficiency, and profitability of agriculture and working landscapes
2. Improved animal management (e.g, welfare, profitability, and sustainability)
3. Enhanced food systems and markets (e.g., crops/products, supply chains, diversified/niche markets)
4. Improved workforce development for individuals, communities, and industry
5. Enhanced business and community leadership
6. Improved individual and household financial stability
7. Enhanced community economic development

Focusing Your Outcomes Evaluation



Define Intended Outcomes that are...



REASONABLE

- connected in a logical way to your program activities



REALISTIC

achievable given the situation and resources/inputs



IMPORTANT

- represent an important change that is valued by participants and key stakeholders

Outcome Indicators

Criteria:

Direct

Specific

Useful

Practical

Culturally responsive

Adequate



If the outcome is achieved, how will you know it?



What will it look like?



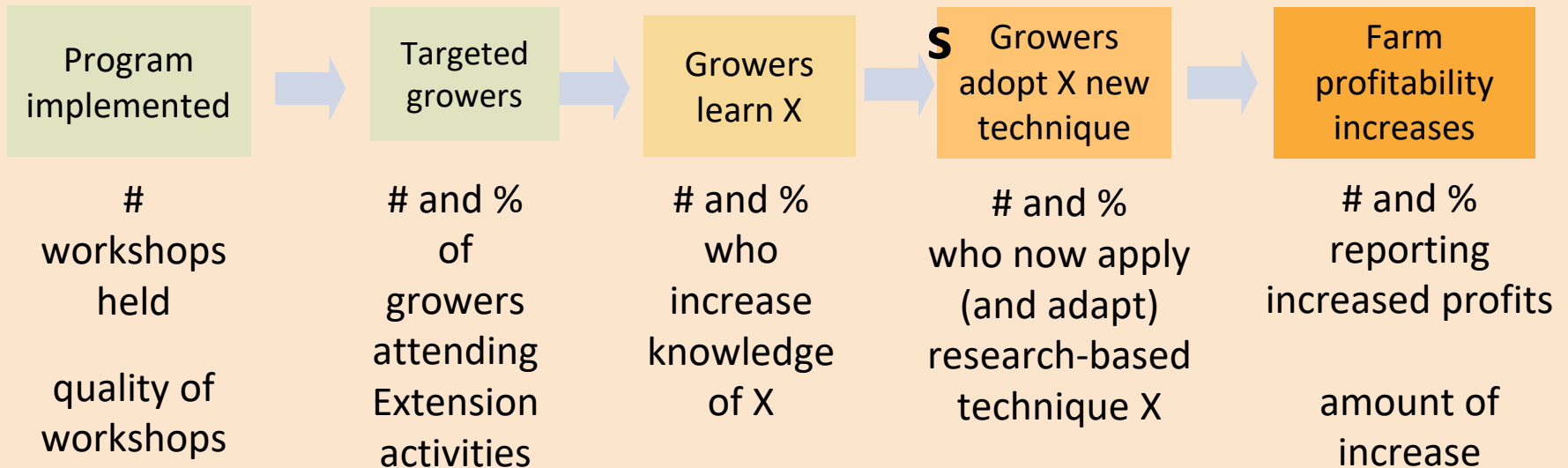
What is the evidence?

Logic Model with Indicators



Activities

Outcome



Add Your Ideas to Chat

Intended Outcome: Growers have expanded economic opportunities

What are some possible outcome indicators?

Practical Methods for Evaluation Data Collection to Measure Outcomes

Sources of Evaluation Data

Mostly your clientele or program participants.

Other sources may include:

- Existing data
 - Exit report, government reports, program records, sales records, etc.
 - Pictures, charts, maps.
- Non-participants
 - Funders
 - Community members
 - Collaborators

Evaluation Data Collection Methods in Extension

- Secondary Data
- Observation
- Interview
- Focus Groups
- Ripple Effects Mapping
- Survey

Secondary Data

Use it for:

- ✓ Behavior change
- ✓ Quantitative data
- ✓ Qualitative data

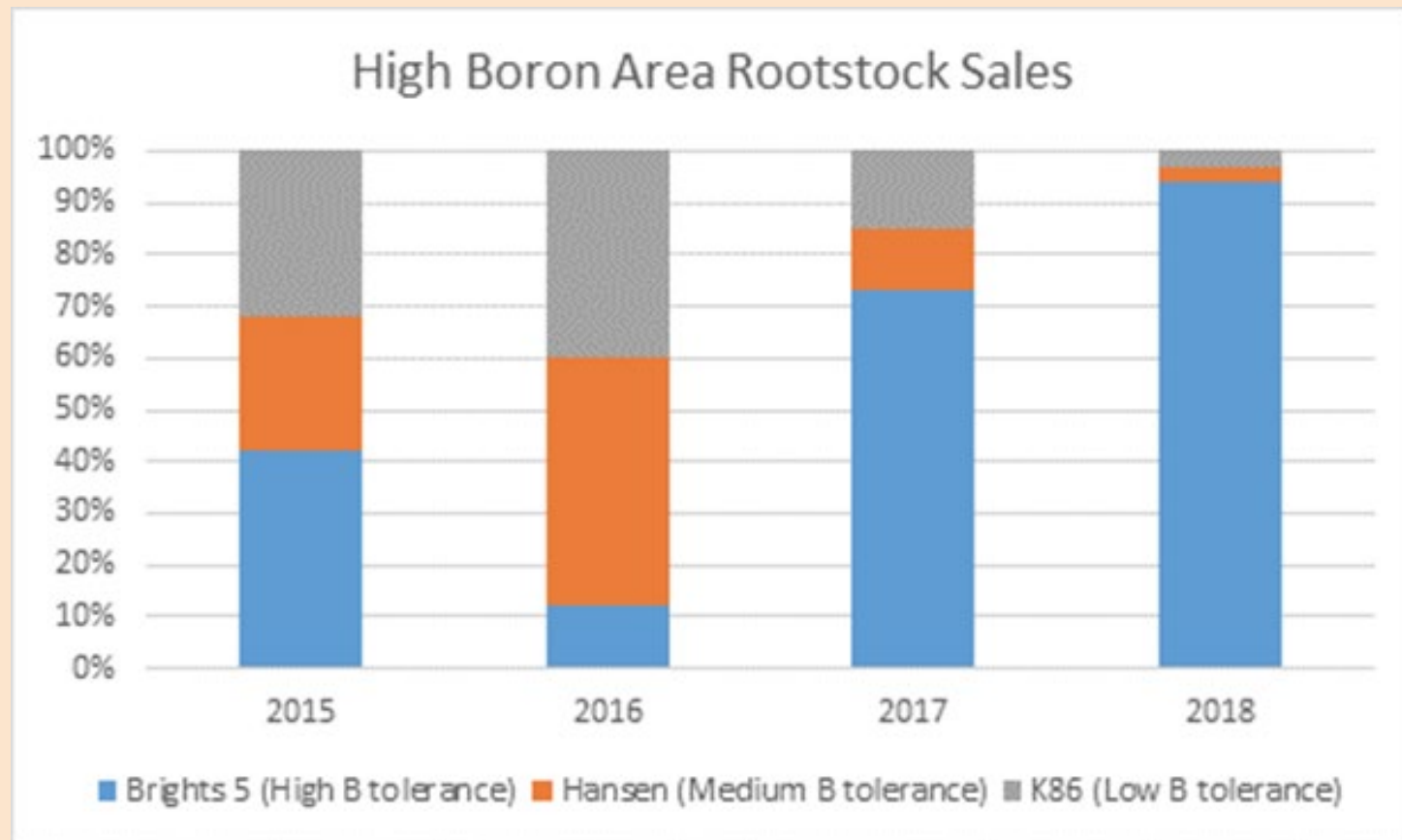
Content analysis of existing information

- Exit reports, government reports
- Sales records or use records
- If possible, get pre and post data for comparison
- Document systematically
- Little to no participant burden

Secondary Data

UCCE Orchard Advisor Katherine Jarvis-Shean

Sales data
from
nursery
partners



Observation

Use it for:

- ✓ Skills gained
- ✓ Behavior change
- ✓ Qualitative data
- ✓ Quantitative data

Seeing & listening!

- You likely already do it!
- When there is physical evidence that can be readily seen
- Confirm fidelity of implementation
- Pre/post approach for comparison
- Field notes and observation checklist

Observation

Field Notes

- Can be in a least structured way
- You can commit observations to memory and make notes later
- Carefully record date, location, and other relevant observed information
- Leave a wide margin for analysis later
- Consider creating a simple database to pull out participant outcomes to report later

Observation

UCCE Specialist in Aquaculture

Jackson Gross

On-farm research -
to optimize use of modern
technologies to increase
aquatic animal welfare
and labor efficiencies

**Four farms adopted
technology and
improved the welfare of
thousands of finfish.**



Observation

Observation Guide/Checklist

- Tool to document what you've seen & heard for later evaluation write-up
- Clipboard in the field or later in the truck



Observation Prompts	Actions You See or Comments You Hear
1. Do the educational materials developed for Clear Lake reflect the region well (e.g.: culturally appropriate, age appropriate, learner-centered etc.)	
2. Do the educational materials appear usable? [Usability attributes include learnability, efficiency, memorability, errors, and satisfaction (Nielsen, 2010)]	
3. Is the feedback from participants used in making changes as needed to the educational materials?	
4. Are participants actively engaging in the field visit and training? (example cues: participants asking questions, participants discussing the educational materials among themselves, providing feedback when requested or even when not requested, etc.)	
5. Any other things that stand out to the observer?	

Observation

Photograph/Video

- Present powerful visuals to illustrate behavior change or adoption
- Can be documented by volunteers, participants, YOU! (*needs little bit of training*)
- Can be analyzed using evaluative rubrics (e.g. youth photo journals)
- *Photovoice*

Observation

Oklahoma State University

*Developing Human Capital for
Entrepreneurship in Sub-Saharan Africa:
A 5-Year Follow-Up Assessment of
Satisfaction and Impact*

Results – Application of Training/Impacts

Participants
document
applying
what they
learned

- Leadership development emerged as a major theme
- Most Fellows credited the Institute with equipping them for business success
- Perceived the training positively influenced their development as entrepreneurs



Ice cream and desserts
business in Tanzania



Honey product sales in Liberia



Sesame oil business in Mali

Interviews

Use it for:

- ✓ Self-reported knowledge, attitude, behavior changes
- ✓ When surveys inappropriate
- ✓ Qualitative data

Talking and listening to people

- Range from free-flowing, semi-structured, tightly structured
- Create an interview protocol for consistency
- Can also ask about impact, unintended outcomes, as well as process evaluation questions (ideas for improvement or barriers to implementation)

Interviews

Formal interviews

- Collect consistent data overtime; using the same questions
- Institutional Review Board (IRB)

Natural Resources Advisor Sabrina Drill, Emeritus

California Naturalists Project Interview Summer 2017

Location: _____ Date _____ Time _____

Interviewer _____

Version for current CC participants

Background

1. General demographic questions (age, ethnicity, etc. -this could be a given already)
2. Which Conservation Corps Program are you participating in? How did you find out about it?
 - a. What factors motivated you to participate?
3. When did you first develop interests in the things that made you to want to participate in the program?
4. Growing up, did your family participate in nature-based/outdoor activities ?
5. Growing up, were you interested in nature and/or science?
6. What are some environmental issues facing your community?
 - a. How do you engage with them?
7. Are there particular environmental issues that are important to you (for example, climate change, energy consumption/carbon footprints, water quality (or clean air etc.), air quality, habitat loss, trash and recycling, etc.??)? If yes, what are they and why?
8. Do you see yourself as someone who knows about the environment?

Interviews

UCCE Forest Advisor and County Director Yana Valachovic

Informal Interviews

Bills influenced by UC ANR's work
on prescribed fire were signed into
law in 2019:

- SB 901 -- provided input
 - AB 38 -- technical adviser
1. Used primary research to inform the discussions
 2. Staffers sent her language to review and provide comment
 3. Often follow-up conversations



Group Assessment

Use it for:

- ✓ Self-reported knowledge, attitude, behavior change
- ✓ Qualitative data

Focus Groups

- Focus groups foster trust and relationship-building in addition to the activity's goals
- Piggyback off existing meetings
- About 10 people for a 90 min session (*6-12 as per literature*)
- Can also ask about impact, unintended outcomes, as well as process evaluation questions

UC Multifaceted Pathways to Climate Smart Agriculture Project

Tapan Pathak, CE Specialist, UC Merced

- Identify climate change impacts and experiences of Hmong farmers in SJV of California
- Two focus groups with 19 farmers
- Sample through Small Farms educators
- 11 questions, lasting about 60 minutes
- Some farmers spoke both Hmong and English
- Data analysis: Hmong speaking moderators met first, then the team had a second meeting with other researchers and shared transcripts
- Findings being used to develop CSA extension programs

Group Assessment

Ripple Effects Mapping

- Appreciative Inquiry
- Intended and unintended outcomes
- Participatory
- Radiant Thinking and Mind Maps (X-mind software)
- Qualitative analysis



Specific training 9/16!

Survey

Use it for:

- ✓ Knowledge change
- ✓ Self-reported knowledge, attitude, behavior change
- ✓ Qualitative data
- ✓ Quantitative data

Collecting standardized information through structured

questionnaires

- Online is fast and cheap
- Typically used for participant reaction, but potential for much more!
- Consider using for in person and online Extension activities
- Consider survey fatigue, add an incentive or use clickers for better engagement
- Qualtrics!
- Always test your survey (cognitive interviews or pilot test)

Survey

Integrated Pest Mgmt Advisor

Cheryl Wilen, Emeritus

Pre/Post
Test
Using clickers



The snail pictured above is a: *

- ☐ White garden snail
- ☐ Brown (European) garden snail
- ☐ Decollate snail
- ☐ Amber snail
- ☐ I don't know



The snail pictured above is a: *

- ☐ White garden snail
- ☐ Brown (European) garden snail
- ☐ Decollate snail
- ☐ Amber snail
- ☐ I don't know

Survey

Natural Resources Advisor Sabrina Drill, Emeritus

Shot-hole Borer
Workshop

Retrospective
post-then-pre
on-site

(or shortly after)

measuring
intent to change
practices

Home - ANR Portal x Edit Survey | Qualtrics Surveys x

Secure | <https://ucanr.co1.qualtrics.com/ControlPanel/?ClientAction=EditSurvey&S>

Apps ANR CalNat ANR Portal Box - UCD UCR Eskalen Lab: Fusarium ANR PSHB Outlook.com -

☐ Q8 **AFTER** this training, do you intend to do the following practices?

	Absolutely	Somewhat	Slightly	Not at all
Identify tree insect pests and diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use recommended strategies to treat for emerging tree pests and diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use recommended IPM strategies to treat for common tree pests and diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use recommended strategies to manage wood and firewood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Share information from this workshop with co-workers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Share information from this workshop with the public	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

☐ Q10 **BEFORE** this training did you do the following practices?

	Absolutely	Somewhat	Slightly	Not at all	Not applicable
Identify tree insect pests and diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use recommended strategies to treat for emerging tree pests and diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Survey

Human-Wildlife Interactions Advisor, Niamh Quinn

**Follow-up survey
to measure
behavior change**



Thank you for attending West Coast Rodent Academy between 2016-2020.

The survey will take about 5-10 minutes.

Please respond to the questions about your personal experiences involving your own integrated pest management practices. If you are a supervisor or decision-maker, please respond to the questions about your company's integrated pest management practices. We intend to use this information to better understand and communicate the successes of the West Coast Rodent Academy to our funders and stakeholders. We may follow up with additional questions.

Key Points on Methods

- Each method has a specific purpose, advantages and challenges.
- Consider purpose, participants, and resources available when selecting your method.
- Be culturally responsive (work with clientele and partners, address cultural bias in questions, participant characteristics influence methods, etc.).
- Secondary data can miss marginalized groups.
- The goal is to obtain trustworthy, authentic and credible evidence.
- Often a mix of methods is required.

Ensuring Inclusive Evaluation

Strawberry & Caneberry Advisor

Mark Bolda

Methods & Translation

